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# SETTING TARGET PRICES

## An Analysis of Three Alternatives

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Agriculture and Trade Analysis Division



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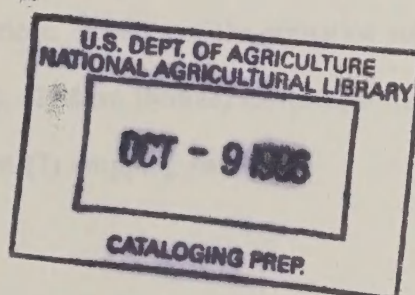
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## Contents

EXECUTIVE SUMMARY .....	i
RATIONALE .....	ii
ASSUMPTIONS .....	ii
IMPACTS .....	iii
RATIONALE .....	1
Price Stability .....	1
Income Transfers .....	3
BACKGROUND .....	4
AVOIDING EXCESS CAPACITY AND STOCK ACCUMULATION .....	5
TARGET PRICE ANALYSIS SCENARIOS .....	6
IMPACTS .....	9
General results .....	9
SPECIFIC CRITERIA IMPACTS .....	10
Budget .....	10
Farm income .....	11
Competitiveness .....	11
Asset Values .....	11
Food Prices .....	12
Environment .....	12
Cropping Patterns .....	12







## RATIONALE

Target prices have been used to foster two agricultural policy objectives: price stability and income enhancement. Setting target prices above the longrun market price generates income transfers. Historically, income transfers have been made to the farm sector to help equalize income disparity between the farm and nonfarm populations. The effects of income transfers may differ depending on the size of the transfer and the source of funds. The use of a price mechanism to transfer income does, however, tend to generate imbalances in the market which have to be dealt with by other means.

If the objective of target prices is to provide year-to-year stability of receipts from crop production, then linking the target price to the moving average market price provides producers with receipts consistent with those they should expect to receive under trend (normal) yield conditions. If the target price is set at the moving average price and the loan rate at a fraction of this level, deficiency payments remove the income risk from an exceptionally low price. Longrun prices, estimated by the moving average of past prices, would still provide the basis for efficient resource decisions. The moving average price would become the basis of expectations and permit the comparison of expected costs of production with expected prices. Those producers expecting to cover variable production costs would continue to produce.

Parity and cost of production have often been suggested as means for setting target prices. Both measures have built-in escalators that tend to cause them to diverge from market conditions and would provide an incentive to make producers unresponsive to market conditions.

## ASSUMPTIONS

The 10-year baseline or benchmark scenario used for the analysis assumes target prices, loan rates, and ARP's decline so that there is a general reduction in support for the program commodities. Three





reference variables are used for setting target prices: parity prices, variable costs of production, and a moving average of past market prices. In three scenarios, the 1990 relationship between the target price and the reference variable is maintained. In the other three scenarios, the ratio of the target price and the reference variable is moved toward a market solution.

Scenarios are run with target prices set at:

- (1) 60 percent of parity prices;
- (2) a declining percentage of parity--from 60 percent to 42 percent over 10 years;
- (3) the 1990 percentage relationship to average variable cost of production for each commodity;
- (4) a declining percentage of variable cost--beginning with the 1990 level and moving to the average variable cost of production by the 10th year;
- (5) the 1990 percentage of target price to a 5-year moving average of past market prices dropping high and low for each commodity; and
- (6) a declining percentage of a 5-year moving average of market prices, dropping high and low, reaching the 5-year moving average in the 10th year.

## IMPACTS

In general:

- o The larger the difference between the target prices under the alternative and the baseline, the larger the magnitude of the impacts.
- o Target prices that move down toward market prices reduce program costs and food prices and increase trade. However, they also result in lower income. For the other alternatives, target prices increase income, raise program costs



and food prices, and reduce trade.

When the target prices under the alternative are higher than the baseline target price level, the following results are implied:

- o Higher target prices stimulate higher program participation. Acreage planted to program crops decreases as more land is placed in conserving use in the ARP programs. Acreage planted to soybeans generally decreases because of higher relative returns to corn and cotton in this situation.
- o With a decrease in planted acreage, crop production decreases, leading to higher commodity prices.
- o Higher commodity prices cause exports to decrease.
- o Higher farmgate prices cause consumer food prices to increase. (Although the percentage change in the "all food" Consumer Price Index (CPI) appears small, this could still imply fairly significant changes in the total dollar amount consumers spend on food.)
- o With increased program participation and higher target prices, deficiency payments increase.
- o Higher deficiency payments coupled with higher commodity prices cause net farm income to increase.





- o Higher net farm income causes land values to increase.
- o With less total planted acreage, the environmental impacts should be less, probably offset, at least partially, by high application rates.
- o Those outcomes which tend to maintain current biases in relative crop returns will continue to encourage resource allocation toward supported crops and away from those with less or without program support.
- o For the cases in which target prices, in the alternatives, are generally smaller than the baseline target prices, the direction of all the changes mentioned above are reversed.



## SETTING TARGET PRICES: An Analysis of Three Policy Alternatives

### RATIONALE

Target prices have been used to foster two agricultural policy objectives: price stability and income enhancement. Setting target prices above the longrun market price generates income transfers. Underlying the income transfers are comparisons of utility among individuals. Historically, income transfers have been made to the farm sector to help equalize income disparity between the farm and nonfarm populations. The effects of income transfers may differ depending on the size of the transfer and the source of funds. The use of a price mechanism to transfer income does, however, tend to generate imbalances in the market which have to be dealt with by other means. The objective of providing enhanced income could be achieved with less production and trade distortion by decoupled target prices based on fixed historical yields and production.

#### Price Stability

If the objective of target prices is to provide price stability to reduce the risk associated with farming, then setting target prices relative to a stable reference variable would provide the predictability and stability necessary to achieve this objective. The issue then is selection of an appropriate reference variable. Three variables are considered in this analysis: a moving average market price, a parity price, and an estimated variable cost of production.

Setting the target price relative to the moving average market price allows the moving average to become the basis for expectations. The target price would then be the price that a producer may expect to receive under trend (normal) yield conditions. If the target price is set at the moving average and the nonrecourse loan rate is set at below the moving average price, then deficiency payments remove the income risk that results from low prices when production is exceptionally large. Longrun prices, as





identified by the moving average of prices would still provide the basis for efficient resource decisions. Those producers expecting to cover variable production costs would continue to produce. An alternative would be to set deficiency payments at a fraction of the difference between the target or moving average market price and the current year market price. Producers would thus retain more of the short-term risk from production. If some income enhancement was desired, setting target prices at a fixed margin above the moving average market price would accomplish this, although an incentive would be created for producing surplus commodities.

Parity prices and cost of production have often been suggested as bases for setting target prices. Both parity and cost of production have built-in escalators which cause them to diverge from market prices. Both variables, if used as a reference for setting target prices, would tend to make producers unresponsive to market conditions and lead to future cycles of surplus and deficits.

Both cost of production and parity prices have been suggesting as providing farmers a "fair" return. Use of the cost of production implies that farmers deserve to cover their production costs and earn a profit or a return to their assets, labor and management. However, cost of production is not a unique number that applies to all producers. Cost of production varies greatly among farms because of differences in technology, soil productivity and producer management. Average production costs (either variable or total) are not representative of any farm. On average, some farms are earning a return and others are losing money. To pay all farms at least their cost of production, target prices would have to be set at the cost of the highest cost firm. All other firms would receive returns well above the market price. Many would be bidding up the prices of inputs including land as they sought to increase their profit. This process becomes circular and costs of production escalate. The parity price reflects the relationship of farm and nonfarm prices by making the base price dependent on the most recent 10-year average price for each commodity.



In a competitive, market-oriented economy, longrun adjustments of production and consumption will occur so that prices of commodities in the market will cover cost of production. In the shortrun, in a market that is characterized by heterogeneous production technology and cost, the current years cost of production and the current years crop price are not related. Costs for a particular crop were decided at planting time. The price a producer receives is decided after harvest, unless the producer hedges. The post harvest price allocates the crop among buyers after harvest; however, it was not necessarily the expected price used by the producer to decide whether or not to plant. Producers argue that weather alters the price from what they expected and, since they based their decisions on expected price, they should be protected from the vagaries of weather.

### Income Transfers

The early justification for providing income support to agricultural producers in the 1930's, was that there was a disparity of returns between agriculture and industry and it was presumed that a balance was required for a healthy economy. However, with rapid technological change, prices can fall while factor returns are maintained by increased productivity. With economic development, agriculture tends to decline relative to other sectors because of the inelasticity of demand for agricultural commodities with respect to income. Markets account for this with lower relative returns in agriculture compared with other sectors and the sector tends to reorganize its use of resources if the market is allowed to function.

Although the early policymakers were concerned about the disparity among industry and agriculture, this was thought to be temporary and resolvable by short-term supply control measures. The concept was more in terms of support for commercial markets and commercial activity than support for individual farmers.

A basis for continuing to make income transfers to producers of certain commodities is an assumption





that there is a responsibility to make a smooth transition from high levels of income support to market oriented pricing. The current level of income transfer to supported commodity producers is \$10 billion to \$15 billion. Removal of this support without a transition process would result in a shock to the sector that would cause prices and incomes to decline, in the short run, below long run equilibrium levels, resulting in unnecessary loss of farms and hardship in rural areas. That is unnecessary from the standpoint of bringing the sector to the market equilibrium level.

An important question in setting target prices concerns the alternatives to current programs that could bring about a reduction in program cost without creating substantial economic and political turmoil. In order to avoid instability while reducing income transfers and, thus, program costs, adjustment programs may be required. These programs could be used in a transition from high income subsidies to market orientation, or in separating income subsidies from market pricing, while preventing dramatic shocks to income and asset values.

Such transition payments can be made using any of several systems. Because the basis for income transfers is arbitrary from the standpoint of economics, the transition or adjustment protection assistance can use any practical device to phase out high supports, assuming that it is efficient in achieving its objective. For example, target prices could be set at their current level and then scaled down over a 10-year period to the market price level as in scenario 6 of this analysis.

## BACKGROUND

The original objective of target prices established by the Agriculture and Consumer Protection Act of 1973 was to provide for income stability. Under the Act, the initial level of the target price was set by Congress and was to be adjusted in later years by a formula reflecting changes in the Index of Prices Paid by farmers for production items, including interest, taxes, and farm wage rates. The Prices Paid Index was a device to reflect changes in the cost of purchased inputs. The formula also was to take into



account changes in yields as the result of changes in productivity. Yield changes were to reflect changes in a 3-year moving average for the 3 prior years from the average for the next 3 preceding years. This procedure moved away from the 1970 Act's fixed income support per bushel to a variable income support (deficiency payment) based on the level of the market price relative to the target price. As long as the market price exceeded the target price, no deficiency payments were made.

The Food and Agriculture Act of 1977 set the target prices on the basis of commodity-specific costs of production. The corn target price was initially set at \$2.00 for the 1977 crop, raised to \$2.10 for the 1978 crop, and was to be adjusted for later years by changes in the average adjusted cost of production for the preceding 2 years. For wheat, the 1977 crop target price was initially set at \$2.90. The wheat target price was \$.65 above the loan rate, while the corn target price was equal to the loan rate. Thus, there was a clear income support objective for wheat producers and an apparent stability objective for feed grain producers. The target price adjustment formula specified by the 1977 Act was applied during a period of rapid inflation; in addition, the formula used lagged variables, so adjustments lagged actual cost conditions.

The 1981 Act abandoned the cost of production formula for adjusting target prices. Minimum target prices were established by legislation for the 1982 through 1985 crops.

Under the Food Security Act of 1985, target prices were frozen at 1985 levels for 1986-87 and were scheduled to decline thereafter. With target prices well above market prices, deficiency payments were used to enhance and stabilize income above the longrun market level. Currently, target prices are set by legislation as the outcome of negotiations among policymakers after considering the evidence presented.

#### **AVOIDING EXCESS CAPACITY AND STOCK ACCUMULATION**

To avoid inducing excess capacity with program implementation, producers must have a fairly clear view





of real longrun prices. Moving to market-determined target prices would be a move in this direction. However, the short-term weather disturbances, which are noneconomic aberrations, would continue to have a strong impact on the market. The effect could be buffered by a market oriented stock acquisition and dispersal program that allowed the market to solve for the longrun equilibrium price. Price floors and ceilings should not be fixed by legislation. Adjustments could be made to improve the markets function as an allocator of resources and output. The effect of weather variability could be reduced to avoid shortrun disturbances that send the wrong signal for longrun trends.

### TARGET PRICE ANALYSIS SCENARIOS

In this section specific examples of how the reference variables can be used to set alternative target prices. Since the focus of this analysis is the target price program, other program instruments are held at the baseline levels. The analysis shows the impacts of setting target prices relative to three reference variables under two alternative scenarios. Results of the scenarios are evaluated with respect to: (1) budget exposure (deficiency payments), (2) farm income, (3) competitiveness, (4) food prices, (5) asset values, (6) environmental impact, and (7) cropping patterns. These were chosen because they relate to frequently stated policy objectives and they receive considerable attention from the proponents and critics of programs. The outcome of policies with respect to these criteria is likely to carry a heavy weight in the acceptability of any proposed program changes.

Baseline target prices used in the analysis were established by the inter-agency baseline committee. Baseline target prices, parity prices, and variable costs of production for wheat, corn, sorghum, barley, oats, cotton, and rice are shown in tables 4 to 6. In the baseline, target prices for the seven commodities are assumed to decrease ranging from 3 to 0.6 percent a year during the 10 years. Target prices under the alternative scenarios are shown in tables 7 to 12.



Alternative target price schemes are considered based on three reference variables--parity prices, variable costs of production, and past market prices. In each case, two levels are analyzed: (1) a continuation of the 1990 relationship between the target price and the reference price, and (2) a reduction of the ratio toward market orientation. The six resulting scenarios are:

Parity price:

- o 60 percent of parity prices;
- o a declining percentage of parity--from 60 percent to 42 percent;

Cost of production:

- o the 1990 percentage relationship to average variable cost of production for each commodity--setting target prices for wheat, corn, sorghum, barley, oats, cotton, and rice at 264, 230, 256, 210, 116, 160, and 210 percent of variable cost of production.
- o a declining percentage of variable cost--beginning with the 1990 level and moving to the average variable cost of production by the 10th year;

Past market prices:

- o the 1990 relationship of target price to a 5-year moving average of past market prices dropping high and low for each commodity; and
- o a declining percentage of the 5-year moving average of market prices, dropping high and low, reaching the moving average in the 10th year.

**Scenarios 1 and 2:** Parity price was originally defined as the price that gives a unit of a commodity the same purchasing power today as it had in the 1910-14 base period. The parity price was revised in 1948 to reflect a more recent relationship of farm and nonfarm prices by making the base price dependent on the most recent 10-year average price for each commodity. Parity price is not currently used except for wool, mohair, and some minor tobaccos. Parity is part of permanent legislation.



In the first scenario, target prices are based on a reference price of 60 percent of parity prices and are above baseline target prices (tables 4 and 7). In the second scenario, target prices are based on a declining fraction of parity prices, moving from 60 percent to 42 percent for all seven commodities, wheat, corn, sorghum, barley, oats, cotton, and rice. Under this scenario, target prices also remain above baseline target prices (tables 4 and 8).

**Scenarios 3 and 4:** In the shortrun, farmers can stay in business as long as they can cover variable costs. Setting target prices based on average variable costs of production implies that the least cost farmers would remain above their shut-down point. Target prices at the beginning of the baseline in 1990 are much higher than the average variable costs of production--16 percent to 164 percent higher. Target prices under scenario 3 are set at the initial year fixed percentage of variable costs of production.

Under this alternative, target prices remain above the baseline levels (tables 4 and 9).

To bring target prices in line with variable costs of production, a declining percentage of variable costs of production is used in scenario 4. The percent fraction is assumed to decline from 1990 levels to 100 percent of average variable costs (table 1). Target prices under this scenario move below the baseline target prices (tables 4 and 10).

**Scenarios 5 and 6:** Basing target prices on a moving average of past market prices makes them responsive to longer run market conditions. Target prices based on a fixed percentage of a 5-year moving average past market prices, scenario 5, remain above the baseline (tables 4 and 11).

Under scenario 6, target prices are based on a declining percentage of a 5-year moving average of past market prices. Target prices under this scenario decline below the baseline and by the 10th year (1999/2000 crop year) are about at the past 5-year moving average market prices (tables 4 and 12).





## IMPACTS

This analysis assumes that, of the current mix of policy instruments, only target prices are changed from the baseline. Results are presented as changes from the baseline situation. All other program provisions such as, loan rates, ARP, and CRP, are maintained at the same levels as in the baseline. Changing one or more other program instruments will give different results than those presented in this report.

### General results:

When the target prices under the alternative generally are higher than the baseline target price level, the following results are observed:

- o Higher target prices induce higher program participation. Acreage planted to program crops decreases as more land is placed in conserving use in the ARP programs. Acreage planted to soybeans generally decreases because of higher relative returns to corn and cotton in this situation.
- o With a decrease in planted acreage, crop production decreases, leading to higher commodity prices.
- o Higher commodity prices cause exports to decrease.
- o Higher farmgate prices cause consumer food prices to increase. (Although the percentage change in the "all food" CPI appears small, this could still imply fairly significant changes in the total dollar amount consumers spend on food.)
- o With increased program participation and higher target prices, deficiency payments



increase.

- o Higher deficiency payments coupled with higher commodity prices causes net farm income to increase.
- o Higher net farm income causes land values to increase.
- o With less total planted acreage, the environmental impacts should be less. This might be partially offset by an increase in input intensity.
- o For the cases in which target prices, in the alternatives, are generally smaller than the baseline target prices, the direction of all the changes mentioned above are reversed.
- o The larger the difference between the target prices under the alternative and the baseline, the larger the magnitude of the impacts.
- o Target prices that move down toward market prices tend to reduce program costs and food prices and increase trade. However, they also result in lower income. On the other side, target prices that are used to provide increased income raise program costs and food prices and reduce trade.

#### SPECIFIC CRITERIA IMPACTS

**Budget:** Target prices under scenarios 4 and 6 decline more than under the other scenarios and more than under the baseline: as a result, deficiency payments decline below the baseline. Program participation also decreases. Deficiency payments are estimated to decrease by an accumulated \$13





billion and \$5.9 billion during the 1990/1991 to 1999/2000 marketing years.

Target prices under scenarios 1, 2, 3, and 5 are above the base scenario. With higher target prices and higher program participation, cumulative deficiency payments are increased by \$53.9, \$10.8, \$67.6, and \$32.6 billion above the baseline under the respective four scenarios.

**Farm income:** With higher target prices and higher program participation under scenarios 1, 2, 3, and 5, acreage planted to program crops decreases and more land is placed in conservation use in the ARP programs. This leads to higher commodity prices. Higher deficiency payments under these four scenarios coupled with higher commodity prices cause net farm income to increase. Accumulated net farm income increases total \$72.1, \$19.9, \$78.9, and \$39.7 billion, respectively, for scenarios 1, 2, 3, and 5 during 1990 to 1999 calendar year.

Because target prices are lower than the baseline in scenarios 4 and 6, program participation decreases. Acreage planted to program crops increases and crop production increases. With higher production, commodity prices decline. Lower target prices coupled with lower commodity prices result in lower net farm income. The accumulated net farm income decline totals \$15.4 billion and \$2.1 billion under scenarios 4 and 6.

**Competitiveness:** Exports of wheat, corn, soybeans, and cotton increase under scenarios 4 and 6. Lower target prices leading to lower participation and higher production and, thus, lower commodity prices makes the U.S. commodities more attractive in the world markets.

Because of higher commodity prices in scenarios 1, 2, 3, and 5, exports of wheat, corn, soybeans, and cotton decline from the baseline.



**Asset Values:** With higher net farm income under scenarios 1, 2, 3, and 5, land values increase. Land values average 3.9, 1.5, 3.7, and 1.7 percent, respectively above the baseline over the 10-year simulation. Under scenarios 4 and 6, land values decline about 1 percent per year.

**Food Prices:** With higher commodity prices in scenarios 1, 2, 3, and 5, consumer food prices increase modestly on a percentage basis. The "all food" CPI increases, ranging from 0.8 percent to 0.2 percent in the four scenarios. Although the percentage change in the "all food" CPI appears small, this still implies fairly significant changes in the total dollar amount consumers spend on food. The "all food" CPI decreases under scenarios 4 and 6 because of lower commodity prices than the baseline. The "all food" CPI decreases by 0.16 percent and 0.7 percent on average under the two scenarios.

**Environment:** With less total planted acreage under scenarios 1, 2, 3, and 5, the negative environmental impacts are likely to be smaller than under scenarios 4 and 6. Higher acreage planted may imply that 2farmers will use more fertilizers and pesticides. This could lead to increased chemical run-off. However, the tradeoff between increased acres and application rates is not clear and the environmental impacts are uncertain.

**Cropping Patterns:** Scenarios that set target prices relative to variables other than market prices will lead to relative income distortions and will cause more or less of particular crops to be grown than under a market outcome. A primary example of this is the current relationship between corn and soybeans which produces more corn and less beans than the market would produce under market-oriented programs. As can be seen in table 2, current target prices vary substantially in the degree of implied subsidy from the market outcome from a high of 83 percent above the market price for rice to below the market price for oats.



Table 1. Scenario 4 assumptions: Target prices as a declining percent of variable cost of production.

	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
	--- percent ---									
Wheat	264	246	227	209	191	173	155	136	118	100
Corn	230	215	201	187	172	158	143	129	114	100
Sorghum	256	239	222	204	187	170	152	135	117	100
Barley	210	197	185	173	161	149	137	124	112	100
Oats	116	114	112	111	109	107	105	104	102	100
Cotton	160	153	147	140	133	127	120	113	107	100
Rice	210	198	186	173	161	149	137	124	112	100

Table 2. Scenario 5 assumptions: Target prices at the current percent of the moving average of past prices.

	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
	--- percent ---									
Wheat	130	130	130	130	130	130	130	130	130	130
Corn	135	135	135	135	135	135	135	135	135	135
Sorghum	144	144	144	144	144	144	144	144	144	144
Barley	118	118	118	118	118	118	118	118	118	118
Oats	96	96	96	96	96	96	96	96	96	96
Cotton	132	132	132	132	132	132	132	132	132	132
Rice	183	183	183	183	183	183	183	183	183	183

Table 3. Scenario 6 assumptions: Target Prices as a declining percent of the moving average of past prices.

	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
	--- percent ---									
Wheat	130	127	124	120	117	114	110	107	104	100
Corn	135	131	127	123	119	116	112	108	104	100
Sorghum	144	139	134	129	124	120	115	110	105	100
Barley	118	116	114	112	110	108	106	104	102	100
Oats	96	96	97	97	98	98	99	99	100	100
Cotton	132	128	125	121	118	114	111	107	104	100
Rice	183	174	165	155	146	137	128	118	109	100

Table 4. Baseline Target Prices.

	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
Wheat (\$/bu)	\$4.00	\$3.90	\$3.80	\$3.71	\$3.62	\$3.53	\$3.44	\$3.36	\$3.28	\$3.20
Corn (\$/bu)	\$2.75	\$2.66	\$2.58	\$2.50	\$2.42	\$2.34	\$2.27	\$2.20	\$2.13	\$2.06
Sorghum (\$/bu)	\$2.61	\$2.53	\$2.44	\$2.36	\$2.28	\$2.20	\$2.13	\$2.05	\$1.99	\$1.92
Barley (\$/bu)	\$2.36	\$2.29	\$2.22	\$2.16	\$2.10	\$2.04	\$1.98	\$1.92	\$1.86	\$1.81
Oats (\$/bu)	\$1.45	\$1.40	\$1.36	\$1.31	\$1.27	\$1.23	\$1.19	\$1.15	\$1.11	\$1.07
Cotton (\$/lb)	\$0.729	\$0.724	\$0.719	\$0.714	\$0.709	\$0.704	\$0.699	\$0.694	\$0.689	\$0.684
Rice (\$/cwt)	\$10.71	\$10.62	\$10.53	\$10.44	\$10.35	\$10.26	\$10.17	\$10.09	\$10.01	\$9.93

Table 5. Baseline parity prices.

	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
Wheat (\$/bu)	\$6.90	\$7.06	\$7.22	\$7.41	\$7.64	\$7.69	\$7.85	\$8.28	\$8.67	\$8.76
Corn (\$/bu)	\$5.00	\$4.92	\$4.92	\$4.94	\$4.87	\$4.83	\$4.89	\$5.16	\$5.31	\$5.28
Sorghum (\$/bu)	\$4.51	\$4.42	\$4.43	\$4.41	\$4.40	\$4.36	\$4.44	\$4.67	\$4.81	\$4.79
Barley (\$/bu)	\$4.65	\$4.68	\$4.72	\$4.85	\$4.94	\$4.93	\$5.03	\$5.24	\$5.40	\$5.32
Oats (\$/bu)	\$3.47	\$3.59	\$3.66	\$3.82	\$4.00	\$4.07	\$4.28	\$4.53	\$4.70	\$4.59
Cotton (\$/lb)	\$1.22	\$1.22	\$1.27	\$1.31	\$1.35	\$1.38	\$1.42	\$1.49	\$1.52	\$1.59
Rice (\$/cwt)	\$15.32	\$14.08	\$13.49	\$13.16	\$12.70	\$12.00	\$11.76	\$12.31	\$11.97	\$11.95





Table 6. Baseline variable cost of production.

	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
Wheat (\$/bu)	\$1.52	\$1.54	\$1.59	\$1.64	\$1.70	\$1.77	\$1.82	\$1.88	\$1.95	\$2.01
Corn (\$/bu)	\$1.20	\$1.21	\$1.24	\$1.27	\$1.33	\$1.37	\$1.42	\$1.46	\$1.50	\$1.54
Sorghum (\$/bu)	\$1.02	\$1.04	\$1.08	\$1.11	\$1.17	\$1.22	\$1.27	\$1.31	\$1.36	\$1.41
Barley (\$/bu)	\$1.13	\$1.15	\$1.19	\$1.23	\$1.28	\$1.33	\$1.39	\$1.43	\$1.48	\$1.53
Oats (\$/bu)	\$1.25	\$1.28	\$1.32	\$1.36	\$1.43	\$1.49	\$1.56	\$1.60	\$1.67	\$1.72
Cotton (\$/lb)	\$0.46	\$0.47	\$0.48	\$0.50	\$0.51	\$0.53	\$0.55	\$0.56	\$0.58	\$0.60
Rice (\$/cwt)	\$5.10	\$5.30	\$5.51	\$5.78	\$6.06	\$6.29	\$6.52	\$6.70	\$6.99	\$7.24

Table 7. Scenario 1: Target prices based on 60 percent of parity assumptions.

	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
Wheat (\$/bu)	\$4.14	\$4.24	\$4.33	\$4.45	\$4.58	\$4.61	\$4.71	\$4.97	\$5.20	\$5.26
Corn (\$/bu)	\$3.00	\$2.95	\$2.95	\$2.96	\$2.92	\$2.90	\$2.93	\$3.09	\$3.18	\$3.17
Sorghum (\$/bu)	\$2.71	\$2.65	\$2.66	\$2.65	\$2.64	\$2.62	\$2.66	\$2.80	\$2.89	\$2.87
Barley (\$/bu)	\$2.79	\$2.81	\$2.83	\$2.91	\$2.96	\$2.96	\$3.02	\$3.14	\$3.24	\$3.19
Oats (\$/bu)	\$2.08	\$2.16	\$2.19	\$2.29	\$2.40	\$2.44	\$2.57	\$2.72	\$2.82	\$2.75
Cotton (\$/lb)	\$0.73	\$0.73	\$0.76	\$0.79	\$0.81	\$0.83	\$0.85	\$0.89	\$0.91	\$0.96
Rice (\$/cwt)	\$9.19	\$8.45	\$8.09	\$7.90	\$7.62	\$7.20	\$7.06	\$7.38	\$7.18	\$7.17

Table 8. Scenario 2: Target prices based on a declining percent of parity assumptions.

	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
Wheat (\$/bu)	\$4.14	\$4.10	\$4.04	\$4.00	\$3.97	\$3.85	\$3.77	\$3.81	\$3.81	\$3.68
Corn (\$/bu)	\$3.00	\$2.85	\$2.76	\$2.67	\$2.53	\$2.41	\$2.35	\$2.37	\$2.33	\$2.22
Sorghum (\$/bu)	\$2.71	\$2.57	\$2.48	\$2.38	\$2.29	\$2.18	\$2.13	\$2.15	\$2.12	\$2.01
Barley (\$/bu)	\$2.79	\$2.71	\$2.64	\$2.62	\$2.57	\$2.46	\$2.41	\$2.41	\$2.37	\$2.23
Oats (\$/bu)	\$2.08	\$2.08	\$2.05	\$2.06	\$2.08	\$2.04	\$2.05	\$2.08	\$2.07	\$1.93
Cotton (\$/lb)	\$0.73	\$0.71	\$0.71	\$0.71	\$0.70	\$0.69	\$0.68	\$0.68	\$0.67	\$0.67
Rice (\$/cwt)	\$9.19	\$8.17	\$7.55	\$7.11	\$6.60	\$6.00	\$5.65	\$5.66	\$5.27	\$5.02

Table 9. Scenario 3: Target prices based on a constant percentage of variable cost of production assumptions.

	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
Wheat (\$/bu)	\$4.00	\$4.07	\$4.18	\$4.32	\$4.49	\$4.66	\$4.80	\$4.96	\$5.14	\$5.31
Corn (\$/bu)	\$2.75	\$2.78	\$2.85	\$2.92	\$3.05	\$3.16	\$3.27	\$3.35	\$3.44	\$3.53
Sorghum (\$/bu)	\$2.61	\$2.67	\$2.76	\$2.86	\$3.00	\$3.13	\$3.26	\$3.37	\$3.48	\$3.60
Barley (\$/bu)	\$2.36	\$2.42	\$2.50	\$2.58	\$2.69	\$2.80	\$2.91	\$3.00	\$3.10	\$3.20
Oats (\$/bu)	\$1.45	\$1.48	\$1.52	\$1.57	\$1.66	\$1.72	\$1.80	\$1.86	\$1.93	\$2.00
Cotton (\$/lb)	\$0.729	\$0.747	\$0.770	\$0.793	\$0.821	\$0.848	\$0.877	\$0.902	\$0.931	\$0.960
Rice (\$/cwt)	\$10.71	\$11.13	\$11.58	\$12.14	\$12.73	\$13.22	\$13.70	\$14.07	\$14.68	\$15.22

Table 10. Scenario 4: Target prices base on a declining percentage of variable cost of production assumptions.

	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
Wheat (\$/bu)	\$4.00	\$3.79	\$3.61	\$3.42	\$3.25	\$3.05	\$2.81	\$2.57	\$2.30	\$2.01
Corn (\$/bu)	\$2.75	\$2.61	\$2.50	\$2.37	\$2.28	\$2.17	\$2.04	\$1.88	\$1.71	\$1.54
Sorghum (\$/bu)	\$2.61	\$2.49	\$2.39	\$2.28	\$2.19	\$2.07	\$1.93	\$1.77	\$1.59	\$1.41
Barley (\$/bu)	\$2.36	\$2.27	\$2.21	\$2.13	\$2.07	\$1.98	\$1.89	\$1.78	\$1.66	\$1.53
Oats (\$/bu)	\$1.45	\$1.46	\$1.48	\$1.50	\$1.56	\$1.59	\$1.64	\$1.66	\$1.70	\$1.72
Cotton (\$/lb)	\$0.729	\$0.716	\$0.706	\$0.694	\$0.685	\$0.671	\$0.658	\$0.639	\$0.621	\$0.600
Rice (\$/cwt)	\$10.71	\$10.48	\$10.23	\$10.02	\$9.77	\$9.37	\$8.92	\$8.34	\$7.84	\$7.24



Table 11. Scenario 5: Target Prices based on a constant percentage of market prices assumptions.\*

	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
Wheat (\$/bu)	\$4.00	\$4.17	\$4.51	\$4.51	\$4.40	\$4.32	\$4.28	\$4.27	\$4.27	\$4.31
Corn (\$/bu)	\$2.75	\$2.58	\$2.58	\$2.56	\$2.56	\$2.65	\$2.79	\$2.94	\$2.99	\$3.02
Sorghum (\$/bu)	\$2.61	\$2.50	\$2.50	\$2.51	\$2.51	\$2.59	\$2.72	\$2.82	\$2.83	\$2.80
Barley (\$/bu)	\$2.36	\$2.40	\$2.48	\$2.49	\$2.46	\$2.43	\$2.42	\$2.43	\$2.47	\$2.46
Oats (\$/bu)	\$1.45	\$1.60	\$1.63	\$1.64	\$1.64	\$1.66	\$1.69	\$1.72	\$1.74	\$1.76
Cotton (\$/lb)	\$0.719	\$0.710	\$0.738	\$0.738	\$0.762	\$0.791	\$0.813	\$0.827	\$0.835	\$0.838
Rice (\$/cwt)	\$10.80	\$9.83	\$10.26	\$9.99	\$9.99	\$10.45	\$10.45	\$10.36	\$10.42	\$10.41

\* Five-year moving average of past market prices dropping the high and low.

Table 12. Scenario 6: Target prices based on a declining percentage of market prices assumptions.\*

	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000
Wheat (\$/bu)	\$4.00	\$4.07	\$4.29	\$4.16	\$3.94	\$3.76	\$3.57	\$3.44	\$3.34	\$3.22
Corn (\$/bu)	\$2.75	\$2.51	\$2.43	\$2.32	\$2.24	\$2.23	\$2.24	\$2.24	\$2.15	\$2.05
Sorghum (\$/bu)	\$2.61	\$2.41	\$2.32	\$2.23	\$2.15	\$2.13	\$2.11	\$2.06	\$1.97	\$1.83
Barley (\$/bu)	\$2.36	\$2.36	\$2.39	\$2.35	\$2.25	\$2.18	\$2.12	\$2.08	\$2.01	\$1.93
Oats (\$/bu)	\$1.45	\$1.60	\$1.65	\$1.65	\$1.67	\$1.67	\$1.71	\$1.74	\$1.75	\$1.75
Cotton (\$/lb)	\$0.719	\$0.688	\$0.698	\$0.675	\$0.677	\$0.676	\$0.674	\$0.658	\$0.643	\$0.618
Rice (\$/cwt)	\$10.80	\$9.34	\$9.45	\$8.88	\$8.48	\$8.72	\$8.47	\$8.09	\$7.58	\$7.08

\* Five-year moving average of past market prices dropping the high and low.

Table 13 Commodity prices: Percentage difference from baseline.

Scenario	Commodity	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Average
--- percent change ---												
1	Wheat	1.553	0.859	1.881	1.639	2.888	3.074	4.792	6.347	6.470	6.447	3.595
2	Wheat	1.560	0.264	0.678	0.522	0.592	0.353	0.809	0.984	1.310	0.921	0.799
3	Wheat	-0.006	1.066	1.530	1.812	2.902	5.681	5.122	7.959	6.880	9.141	4.209
4	Wheat	0.003	-0.272	-0.366	-0.430	-0.404	-0.661	-1.089	-1.133	-1.071	-2.262	-0.769
5	Wheat	0.008	-0.025	1.279	0.805	1.118	1.605	3.873	5.025	3.887	5.370	2.295
6	Wheat	0.014	-0.408	0.104	-0.201	-0.042	-0.051	0.115	0.119	-0.067	-0.204	-0.062
1	Corn	3.393	2.894	4.613	4.813	7.810	9.206	10.620	14.818	16.308	16.463	9.094
2	Corn	3.403	1.168	2.004	1.381	1.048	0.641	1.515	2.095	2.332	1.911	1.750
3	Corn	-0.013	2.254	3.957	5.173	8.055	16.232	14.137	20.065	19.526	24.523	11.391
4	Corn	0.005	-0.952	-1.063	-1.640	-1.367	-1.988	-2.994	-3.657	-3.553	-3.184	-2.039
5	Corn	0.022	-0.400	1.983	1.902	2.472	3.871	7.922	12.921	11.642	14.161	5.650
6	Corn	0.031	-0.180	-0.219	-1.209	-0.722	-0.454	-0.297	0.015	-0.312	-0.530	-0.388
1	Soybeans	2.909	3.260	4.699	6.146	7.243	8.787	9.650	12.973	14.548	15.640	8.586
2	Soybeans	2.965	1.682	1.757	1.913	1.369	0.701	0.778	2.206	1.789	1.829	1.699
3	Soybeans	-0.075	2.106	4.581	6.508	9.839	12.885	16.841	16.382	20.975	20.870	11.091
4	Soybeans	0.032	-0.912	-1.359	-2.036	-2.289	-2.807	-3.404	-4.538	-4.800	-3.869	-2.598
5	Soybeans	-0.205	-0.781	1.838	2.247	3.592	5.724	8.203	11.172	12.626	12.688	5.710
6	Soybeans	-0.151	-2.289	-0.938	-0.191	-1.855	-1.051	-0.461	-0.360	-0.636	-1.263	-0.920
1	Cotton	0.005	1.245	4.920	2.009	1.534	2.043	2.886	2.152	4.626	3.331	2.475
2	Cotton	0.005	0.962	-0.538	0.946	-0.007	-0.071	0.248	-0.141	0.880	-0.267	0.202
3	Cotton	0.000	0.557	1.620	2.016	2.511	4.125	4.218	5.399	4.476	7.891	3.281
4	Cotton	0.000	-0.191	-0.527	-0.448	-0.767	-0.753	-1.045	-1.111	-1.689	-1.193	-0.772
5	Cotton	-0.278	-0.165	0.392	1.010	0.811	2.198	2.310	2.698	4.094	3.191	1.626
6	Cotton	-0.278	-0.694	-0.723	-0.367	-0.943	-0.279	-0.363	-0.351	-0.309	-0.727	-0.503

Table 14. Change in deficiency payments from baseline.

Scenario	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total
--- million dollars ---											
1	2177	2590	3561	4279	4390	4826	5556	7754	9150	9611	53894
2	2175	1297	1202	1033	644	313	191	954	1059	1925	10793
3	2	1424	3159	4596	6042	7367	9501	10298	12660	12528	67577
4	-1	-591	-923	-1306	-1461	-1652	-1791	-2177	-1931	-1497	-13330
5	10	-301	1259	1774	2326	3547	4622	5718	6684	6976	32615
6	8	-1175	-440	-726	-934	-556	-357	-251	-546	-920	-5897





Table 15. Change in exports from baseline.

Scenario	Commodity	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Average
--- percent change ---												
1	Wheat	-0.602	-0.301	-0.605	-0.496	-0.836	-0.877	-1.347	-1.786	-1.794	-1.763	-1.040
2	Wheat	-0.060	-0.093	-0.218	-0.158	-0.171	-0.101	-0.228	-0.277	-0.363	-0.252	-0.192
3	Wheat	0.002	-0.374	-0.492	-0.549	-0.840	-1.621	-1.440	-2.239	-1.908	-2.499	-1.196
4	Wheat	-0.001	0.095	0.118	0.130	0.117	0.189	0.306	0.319	0.297	0.618	0.219
5	Wheat	-0.003	0.009	-0.411	-0.244	-0.324	-0.458	-1.089	-1.414	-1.078	-1.468	-0.648
6	Wheat	-0.005	0.143	-0.033	0.061	0.012	0.014	-0.032	-0.034	0.019	0.056	0.020
1	Soybeans	-0.701	-0.741	-1.015	-1.313	-1.481	-1.732	-1.851	-2.446	-2.728	-2.917	-1.692
2	Soybeans	-0.714	-0.382	-0.380	-0.408	-0.280	-0.138	-0.149	-0.416	-0.335	-0.341	-0.354
3	Soybeans	0.018	-4.790	-0.990	-1.390	-2.012	-2.539	-3.231	-3.089	-3.933	-3.892	-2.584
4	Soybeans	-0.008	0.207	0.294	0.435	0.468	0.553	0.653	0.856	0.900	0.722	0.508
5	Soybeans	0.049	0.177	-0.397	-0.480	-0.735	-1.128	-1.574	-2.107	-2.367	-2.366	-1.092
6	Soybeans	0.036	0.520	0.203	0.408	0.379	0.207	0.088	0.068	0.119	0.236	0.226
1	Cotton	-0.001	-0.263	-0.182	-0.421	-0.435	-0.457	-0.690	-0.555	-1.014	-0.904	-0.492
2	Cotton	-0.001	-0.203	0.051	-0.142	-0.078	0.047	-0.061	0.018	-0.167	-0.002	-0.053
3	Cotton	0.000	-0.118	-0.375	-0.508	-0.601	-0.953	-1.052	-1.245	-1.154	-1.740	-0.774
4	Cotton	0.000	0.040	0.123	0.121	0.173	0.192	0.240	0.271	0.387	0.318	0.187
5	Cotton	0.060	0.052	-0.079	-0.237	-0.216	-0.475	-0.587	-0.625	-0.954	-0.826	-0.388
6	Cotton	0.060	0.164	0.189	0.107	0.203	0.108	0.068	0.093	0.073	0.159	0.122
1	Corn	-0.786	-0.598	-0.898	-1.002	-1.609	-1.772	-1.955	-2.608	-2.814	-2.786	-1.682
2	Corn	-0.788	-0.241	-0.39	-0.288	-0.216	-0.123	-0.279	-0.369	-0.402	-0.323	-0.341
3	Corn	0.003	-0.466	-0.77	-1.077	-1.659	-3.124	-2.603	-3.532	-3.369	-4.150	-2.074
4	Corn	-0.001	0.197	0.207	0.342	0.282	0.383	0.551	0.644	0.613	0.539	0.376
5	Corn	-0.005	0.083	-0.386	-0.396	-0.509	-0.745	-1.459	-2.274	-2.009	-2.397	-1.009
6	Corn	-0.007	0.372	0.043	0.252	0.149	0.087	0.055	-0.003	0.054	0.090	0.109

Table 16. Change in net farm income from baseline.

Scenario	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total
--- billion dollars ---											
1	0.286	3.106	3.970	5.460	6.531	7.038	8.212	9.646	12.876	14.951	72.076
2	0.288	3.020	2.491	2.585	2.540	1.712	1.389	1.364	2.194	2.379	19.962
3	-0.002	0.125	1.784	3.813	5.826	8.261	10.634	13.54	15.871	19.059	78.911
4	0.001	-0.049	-0.688	-1.116	-1.545	-1.805	-2.103	-2.573	-2.975	-2.541	-15.394
5	-0.010	-0.002	-0.272	1.438	2.447	3.320	5.175	7.285	9.568	10.729	39.678
6	-0.009	-0.061	-1.327	-0.609	-0.495	-0.611	-0.065	0.247	0.526	0.252	-2.152

Table 17. Change in total acreage planted from baseline.

Scenario	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Average
--- million acres ---											
1	-1.777	-1.468	-2.021	-2.664	-2.845	-2.672	-3.357	-4.325	-4.524	-4.629	-3.0282
2	-1.777	-0.69	-1.086	-0.898	-0.660	-0.456	-0.631	-1.078	-1.135	-0.814	-0.9225
3	0	-0.844	-1.235	-1.960	-3.406	-3.471	-3.439	-4.075	-3.636	-4.758	-2.6824
4	0	0.49	0.570	0.913	0.871	1.158	1.339	1.438	1.312	0.852	0.8943
5	0.036	0.015	-1.301	-1.277	-1.612	-2.332	-3.212	-3.212	-3.080	-3.568	-1.9543
6	0.036	0.728	-0.174	0.384	0.229	0.065	-0.146	-0.210	-0.041	0.185	0.1056

Table 18. Change in consumer price index (CPI) from baseline.

Scenario	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Average
---percent---											
1	-0.002	0.231	0.257	0.438	0.542	0.694	0.816	0.977	1.322	1.488	0.676
2	-0.002	0.233	0.142	0.242	0.253	0.178	0.124	0.132	0.174	0.205	0.168
3	0.000	-0.002	0.154	0.298	0.434	0.691	1.177	1.294	1.784	1.947	0.778
4	0.000	0.001	-0.065	-0.087	-0.142	-0.165	-0.220	-0.295	-0.354	-0.371	-0.170
5	0.000	-0.001	-0.034	0.118	0.132	0.208	0.379	0.649	0.986	1.060	0.350
6	0.000	0.000	-0.132	-0.055	-0.132	-0.136	-0.092	-0.073	-0.034	-0.041	-0.070





Table 19. Percent change in land values from baseline

Scenario	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999 Average
					---percent---					
1	0.037	0.056	1.076	1.867	2.762	3.792	4.986	6.419	8.346	10.465
2	0.037	0.549	0.817	1.200	1.535	1.740	1.921	2.137	2.466	2.818
3	0.000	0.016	0.323	0.882	1.698	2.926	4.621	6.523	8.925	11.577
4	0.000	-0.006	-0.127	-0.280	-0.506	-0.756	-1.070	-1.463	-1.893	-2.248
5	-0.001	-0.002	-0.053	0.207	0.525	0.999	1.779	2.915	4.378	5.852
6	-0.001	-0.010	-0.245	-0.284	-0.388	-0.473	-0.464	-0.428	-0.338	-0.313
										-0.294



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